3.2.11 Upper Occoquan Group Summary

3.2.11.1 Old Mill Branch Watershed

Description. Old Mill Branch Watershed is a small watershed, with approximately 6 miles of stream assessed. It is located along the middle of the southwestern boundary of the County. The watershed is entirely contained within the County Boundaries, and contains several small tributaries which each drain directly to Bull Run or Occoquan River, and eventually to the Potomac River.

Habitat. The habitat assessment results for Old Mill Branch Watershed are summarized by stream in Table 3-49. Habitat scores for each reach are depicted in Figure 3-73. Based on a length weighted habitat score of 99 (Table 3-2), Old Mill Branch Watershed is lower range of quality compared to the rest of the County. Approximately 1.5 miles of stream were categorized as having "poor" habitat conditions, and 4 miles as "fair."

CEM. Based on the CEM evaluations approximately three quarters of the channels assessed in Old Mill Branch Watershed are in Evolutionary Stage 3 (Table 3-3) with the remainder in Stage 4. Figure 3-74 summarizes the CEM results for Old Mill Branch Watershed.

Infrastructure. The infrastructure inventory resulted in 29 inventory points. The most significant problem was related to a crossing, which was given an impact score of 9. The infrastructure inventory results are summarized in Table 3-50. Figures 3-75, 3-76, 3-77, 3-78, and 3-79 summarize impact scores for the erosion problems; deficient buffers; crossings; pipes/ditches; and dumps, obstructions, and utilities, respectively.

3.2.11.2 Wolf Run Watershed

Description. Wolf Run Watershed is a medium-sized watershed, with approximately 16 miles of stream assessed. It is located along the middle of the southwestern boundary of the County. The watershed is entirely contained within the County Boundaries, and drains directly to the Occoquan River, which eventually discharges to the Potomac River.

Habitat. The habitat assessment results for Wolf Run Watershed are summarized by stream in Table 3-51 Habitat scores for each reach are depicted in Figure 3-73. Based on a length weighted habitat score of 99 (Table 3-2), Wolf Run Watershed is in the lower range of quality, compared to the rest of the County. Approximately 1.5 miles of stream were categorized as having "very poor" habitat conditions, 5 miles as "poor," and 10 miles as "fair."

CEM. Based on the CEM evaluations approximately 98 percent of the channels assessed in Wolf Run Watershed are in Evolutionary Stage 3 (Table 3-3). Figure 3-74 summarizes the CEM results for Wolf Run Watershed.

Infrastructure. The infrastructure inventory resulted in 133 inventory points. The most significant problem was related to a head cut, which was given an impact score of 10. The infrastructure inventory results are summarized in Table 3-52. Figures 3-75, 3-76, 3-77, 3-78, and 3-79 summarize impact scores for the erosion problems; deficient buffers; crossings; pipes/ditches; and dumps, obstructions, and utilities, respectively.

3.2.11.3 Sandy Run Watershed

Description. Sandy Run Watershed is a medium-sized watershed, with approximately 20 miles of stream assessed. It is located along the middle of the southwestern boundary of the County. The watershed is entirely contained within the County Boundaries, and drains directly to the Occoquan River, which eventually discharges to the Potomac River.

Habitat. The habitat assessment results for Sandy Run Watershed are summarized by stream in Table 3-53. Habitat scores for each reach are depicted in Figure 3-73. Based on a length weighted habitat score of 104 (Table 3-2), Sandy Run Watershed is in the middle range of quality, compared to the rest of the County. Approximately 5 miles of stream were categorized as having "poor" habitat conditions, and 15 miles as "fair."

CEM. Based on the CEM evaluations approximately 65 percent of the channels assessed in Sandy Run Watershed are in Evolutionary Stage 3 (Table 3-3), with the remainder in Stage 4. Figure 3-74 summarizes the CEM results for Sandy Run Watershed.

Infrastructure. The infrastructure inventory resulted in 171 inventory points. The most significant problem was related to a head cut which was given an impact score of 10. The infrastructure inventory results are summarized in Table 3-54. Figures 3-75, 3-76, 3-77, 3-78, and 3-79 summarize impact scores for the erosion problems; deficient buffers; crossings; pipes/ditches; and dumps, obstructions, and utilities, respectively.

3.2.11.4 Ryans Dam Watershed

Description. Ryans Dam Watershed is a small watershed, with approximately 4 miles of stream assessed. It is located along the middle of the southwestern boundary of the County. The watershed is entirely contained within the County Boundaries, and consists of several small tributaries which each drain directly to the Occoquan River, and eventually to the Potomac River.

Habitat. The habitat assessment results for Ryans Dam Watershed are summarized by stream in Table 3-55. Habitat scores for each reach are depicted in Figure 3-73. Based on a length weighted habitat score of 145 (Table 3-2), Ryans Dam Watershed is the highest rated watershed in the County. Approximately 3 miles of stream were categorized as having "good" habitat conditions, and 1.5 miles as "excellent."

CEM. Based on the CEM evaluations the channels assessed in Ryans Dam Watershed are nearly evenly divided between Evolutionary Stages 2 and 3 (Table 3-3). Figure 3-74 summarizes the CEM results for Ryans Dam Watershed.

Infrastructure. The infrastructure inventory resulted in 10 inventory points. The most significant problem was related to crossing which was given an impact score of 8. The infrastructure inventory results are summarized in Table 3-56. Figures 3-75, 3-76, 3-77, 3-78, and 3-79 summarize impact scores for the erosion problems; deficient buffers; crossings; pipes/ditches; and dumps, obstructions, and utilities, respectively.

3.2.11.5 Occoquan Watershed

Description. Occoquan Watershed is a small watershed, with approximately 6 miles of stream assessed. It is located along the middle of the southern boundary of the County. The

watershed is entirely contained within the County Boundaries, and consists of several small tributaries that drain directly to the Occoquan River.

Habitat. The habitat assessment results for Occoquan Watershed are summarized by stream in Table 3-57. Habitat scores for each reach are depicted in Figure 3-73. Based on a length weighted habitat score of 117 (Table 3-2), Occoquan Watershed is in the upper middle range of quality, compared to the rest of the County. Approximately 1 mile of stream was categorized as having "poor" habitat conditions, 3.5 miles as "fair," and 2 miles as "good."

CEM. Based on the CEM evaluations approximately 80 percent of the channels assessed in Occoquan Watershed are in Evolutionary Stage 3 (Table 3-3), with the remainder of the watershed in Stages 2 and 4. Figure 3-74 summarizes the CEM results for Occoquan Watershed.

Infrastructure. The infrastructure inventory resulted in 40 inventory points. The most significant problems were related to two erosional areas and a head cut, which were given impact scores of 10. The infrastructure inventory results are summarized in Table 3-58. Figures 3-75, 3-76, 3-77, 3-78, and 3-79 summarize impact scores for the erosion problems; deficient buffers; crossings; pipes/ditches; and dumps, obstructions, and utilities, respectively.

TABLE 3-49
Habitat Assessment Summary for Old Mill Branch Watershed
Fairfax County Stream Physical Assessment

	Linear Feet (Percent) of Stream					
Stream	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Total**
Old Mill Branch	0	2,189	6,566	0	0	8,755
	(0.00%)	(25.00%)	(75.00%)	(0.00%)	(0.00%)	
Tributary to Bull Run	1,586	5,814	13,847	0	0	21,247
	(7.47%)	(27.36%)	(65.17%)	(0.00%)	(0.00%)	
Tributary to Old Mill Branch	0	0	1,627	0	0	1,627
	(0.00%)	(0.00%)	(100.00%	(0.00%)	(0.00%)	
Watershed Total	**1,586**	**8,003**	**22,040**	**0**	**0**	**31,629**
	(5.02%)	**(25.30%)**	**(69.68%)**	**(0.00%)**	**(0.00%)**	

TABLE 3-50
Infrastructure Assessment Summary for Old Mill Branch Watershed
Fairfax County Stream Physical Assessment

Impact Score	0	1	2	3	4	5	6	7	8	9	10	>10	Total
Deficient Buffers	0	0	0	2	2	3	1	1	0	0	0	N/A	9
Crossings	9	2	0	1	1	0	1	1	0	1	0	N/A	16
Ditches and Pipes	1	0	0	0	0	1	0	0	0	0	0	N/A	2
Erosion	0	0	0	0	0	0	1	1	0	0	0	N/A	2
Head Cut	0	0	0	0	0	0	0	0	0	0	0	N/A	0
Obstruction	0	0	0	0	0	0	0	0	0	0	0	N/A	0
Utility	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**10**	**2**	**0**	**3**	**3**	**4**	**3**	**3**	**0**	**1**	**0**	**0**	**29**

TABLE 3-51
Habitat Assessment Summary for Wolf Run Watershed
Fairfax County Stream Physical Assessment

	Linear Feet (Percent) of Stream					
Stream	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Total**
Maple Branch	0 (0.00)	0 (0.00)	7,679 (100.00	0 (0.00)	0 (0.00)	7,679
Swift Run	0 (0.00)	6,540 (100.00	0 (0.00)	0 (0.00)	0 (0.00)	6,540
Tributary to Wolf Run	8,027 (22.11)	10,590 (29.16)	17,696 (48.73)	0 (0.00)	0 (0.00)	36,313
Wolf Run	0 (0.00)	8,708 (25.27)	25,748 (74.73)	0 (0.00)	0 (0.00)	34,457
Watershed Total	8,027 (9.45)	25,839 (30.40)	51,123 (60.15)	0 (0.00)	0 (0.00)	84,989

TABLE 3-52
Infrastructure Assessment Summary for Wolf Run Watershed
Fairfax County Stream Physical Assessment

Impact Score	0	1	2	3	4	5	6	7	8	9	10	>10	Total
Deficient Buffers	0	1	7	24	17	8	0	0	0	0	0	N/A	57
Crossings	33	11	11	6	4	0	0	0	0	0	0	N/A	65
Ditches and Pipes	4	0	1	1	0	0	0	0	0	0	0	N/A	6
Erosion	0	0	0	0	1	0	0	0	0	0	0	N/A	1
Head Cut	0	0	0	1	0	0	0	0	0	0	1	N/A	2
Obstruction	0	0	0	0	2	0	0	0	0	0	0	N/A	2
Utility	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**37**	**12**	**19**	**32**	**24**	**8**	**0**	**0**	**0**	**0**	**1**	**0**	**133**

TABLE 3-53
Habitat Assessment Summary for Sandy Run Watershed
Fairfax County Stream Physical Assessment

	Linear Feet (Percent) of Stream					
Stream	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Total**
Sandy Run	0 (0.00)	0 (0.00)	18,722 (100.00)	0 (0.00)	0 (0.00)	18,722
Tributary to Occoquan River	0 (0.00)	701 (5.19)	12,808 (94.81)	0 (0.00)	0 (0.00)	13,509
Tributary to Sandy Run	0 (0.00)	26,914 (35.72)	48,423 (64.28)	0 (0.00)	0 (0.00)	75,337
Watershed Total	**0 (0.00)**	**27,615 (25.67)**	**79,952 (74.33)**	**0 (0.00)**	**0 (0.00)**	**107,567**

TABLE 3-54
Infrastructure Assessment Summary for Sandy Run Watershed
Fairfax County Stream Physical Assessment

Impact Score	0	1	2	3	4	5	6	7	8	9	10	>10	Total
Deficient Buffers	1	5	26	15	4	2	0	0	0	0	0	N/A	53
Crossings	24	42	16	11	2	1	0	1	0	0	0	N/A	97
Ditches and Pipes	1	1	0	1	0	0	0	0	0	0	0	N/A	3
Erosion	0	0	1	1	2	1	1	0	0	0	0	N/A	6
Head Cut	0	0	0	0	1	0	0	0	0	0	1	N/A	2
Obstruction	0	1	4	2	1	1	0	0	0	0	0	N/A	9
Utility	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	**26**	**49**	**47**	**30**	**11**	**5**	**1**	**1**	**0**	**0**	**1**	**0**	**171**

TABLE 3-55
Habitat Assessment Summary for Ryans Dam Watershed
Fairfax County Stream Physical Assessment

	Linear Feet (Percent) of Stream					
Stream	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Total**
Stillwell Run	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	7,561 (100.00)	7,561
Tributary to Occoquan River	0 (0.00)	0 (0.00)	0 (0.00)	14,929 (100.00)	0 (0.00)	14,929
Watershed Total	**0 (0.00)**	**0 (0.00)**	**0 (0.00)**	**14,929 (66.38)**	**7,561 (33.62)**	**22,490**

TABLE 3-56
Infrastructure Assessment Summary for Ryans Dam Watershed
Fairfax County Stream Physical Assessment

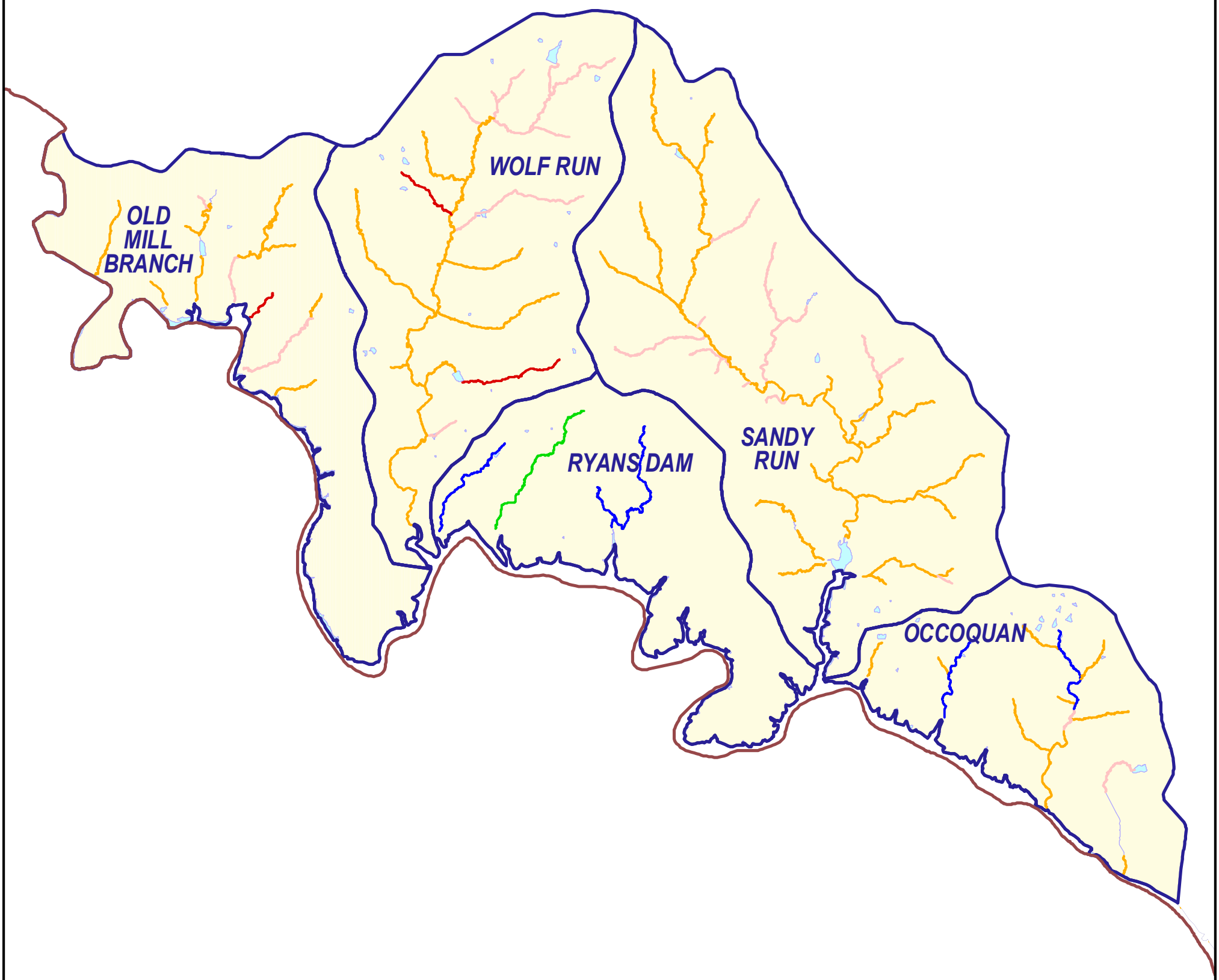
Impact Score	0	1	2	3	4	5	6	7	8	9	10	>10	Total
Deficient Buffers	0	0	0	0	0	0	0	1	0	0	0	N/A	1
Crossings	0	0	3	3	1	0	0	0	1	0	0	N/A	8
Ditches and Pipes	0	1	0	0	0	0	0	0	0	0	0	N/A	1
Erosion	0	0	0	0	0	0	0	0	0	0	0	N/A	0
Head Cut	0	0	0	0	0	0	0	0	0	0	0	N/A	0
Obstruction	0	0	0	0	0	0	0	0	0	0	0	N/A	0
Utility	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**1**	**3**	**3**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**10**

TABLE 3-57
Habitat Assessment Summary for Occoquan Watershed
Fairfax County Stream Physical Assessment

	Linear Feet (Percent) of Stream					
Stream	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Total**
Elk Horn Run	0 (0.00)	1,334 (7.19)	12,669 (68.31)	4,542 (24.49)	0 (0.00)	18,544
Little Occoquan Creek	0 (0.00)	2,874 (74.71)	973 (25.29)	0 (0.00)	0 (0.00)	3,846
Tributary to Elk Horn Run	0 (0.00)	0 (0.00)	2,742 (100.00	0 (0.00)	0 (0.00)	2,742
Tributary to Occoquan River	0 (0.00)	0 (0.00)	2,545 (37.44)	4,252 (62.56)	0 (0.00)	6,796
Watershed Total	**0 (0.00)**	**4,207 (13.18)**	**18,928 (59.28)**	**8,794 (27.54)**	**0 (0.00)**	**31,929**

TABLE 3-58
Infrastructure Assessment Summary for Occoquan Watershed
Fairfax County Stream Physical Assessment

Impact Score	0	1	2	3	4	5	6	7	8	9	10	>10	Total
Deficient Buffers	0	0	0	3	5	0	0	0	0	0	0	N/A	8
Crossings	9	2	2	2	1	0	0	0	0	0	0	N/A	16
Ditches and Pipes	0	5	0	0	0	0	0	0	0	0	0	N/A	5
Erosion	0	0	0	0	0	0	0	0	0	0	2	N/A	2
Head Cut	0	0	0	1	1	0	0	0	0	0	1	N/A	3
Obstruction	0	0	3	1	1	0	0	1	0	0	0	N/A	6
Utility	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**9**	**7**	**5**	**7**	**8**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**40**



Fairfax County Boundary

Habitat Rating

- Excellent
- Good
- Fair
- Poor
- Very Poor
- No Habitat Assessment
- Lakes and Ponds
- Watersheds

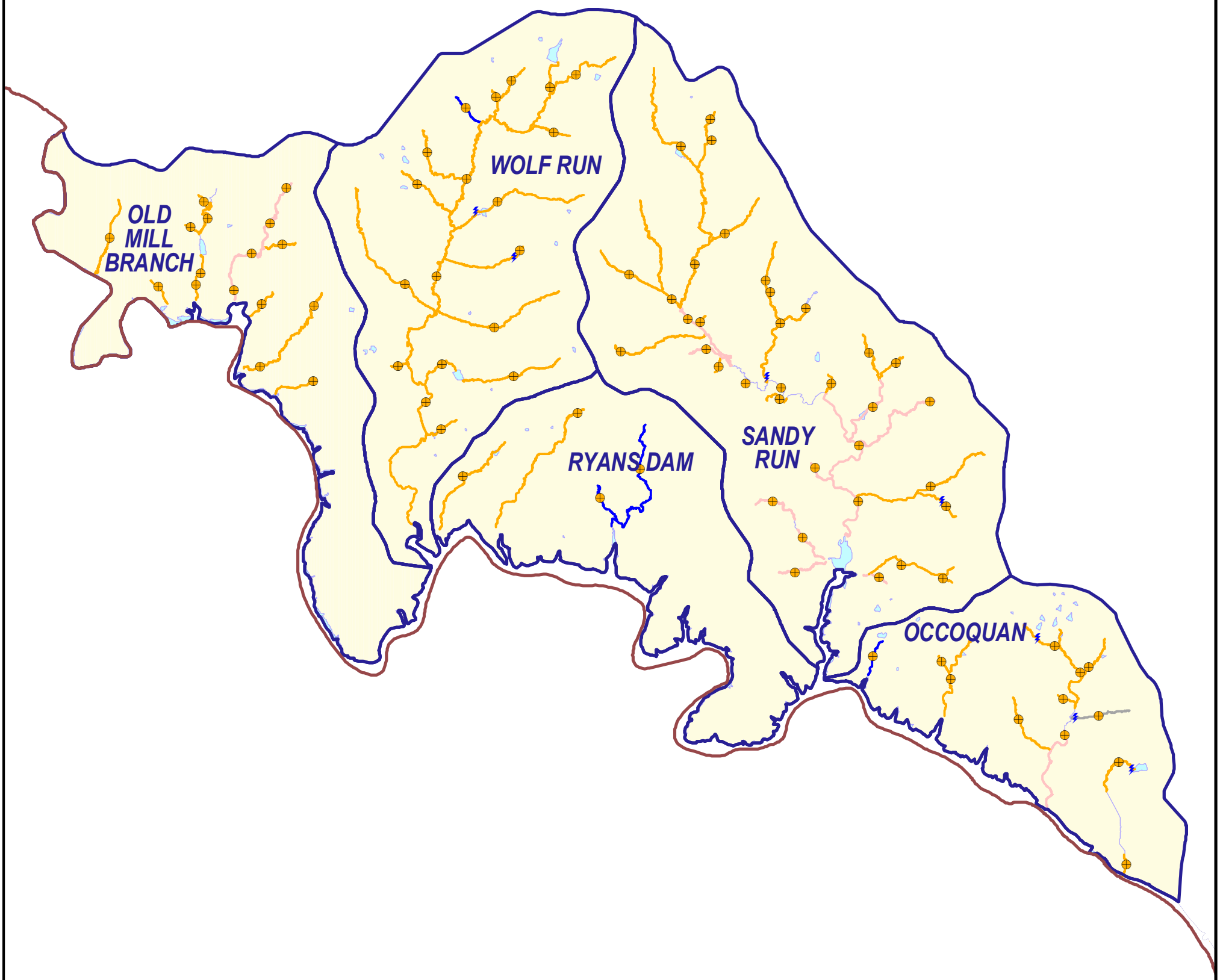
N

WATERSHED GROUP: UPPER OCCOQUAN

0 2000 4000 6000 8000 Feet

Figure 3-73
Habitat Assessment
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL



Inventory Types
- Cross Section
- Head Cut

CEM Stage
- Not Assigned
- 1
- 2
- 3
- 4
- 5
- Fairfax County Boundary
- Lakes and Ponds
- Streams
- Watersheds

N

WATERSHED GROUP: UPPER OCCOQUAN

0 2000 4000 6000 8000 Feet

Figure 3-74
CEM Stages
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL

\\ariadne\proj\18gis\fairfax_sa\avproj\reportmaps12grp.apr

Erosion by Impact Score
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Fairfax County Boundary
Lakes and Ponds
Streams
Watersheds

N

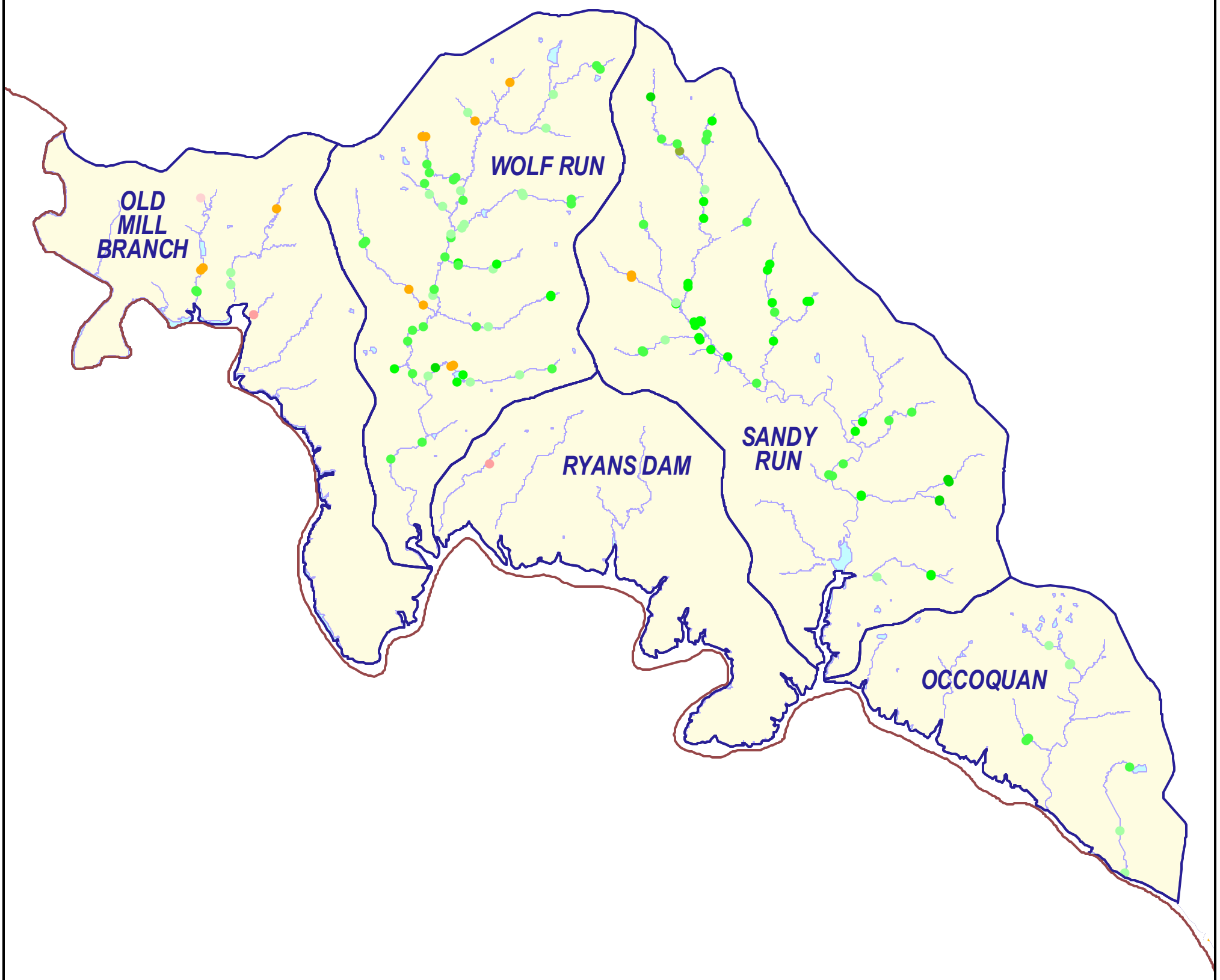
WATERSHED GROUP: UPPER OCCOQUAN

0 2000 4000 6000 8000 Feet

Figure 3-75
Erosion Impacts
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL

\\ariadne\proj\18gis\fairfax_sa\avproj\reportmaps12grp.apr



Deficient Buffer by Impact Score

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Fairfax County Boundary
Lakes and Ponds
Streams
Watersheds

N

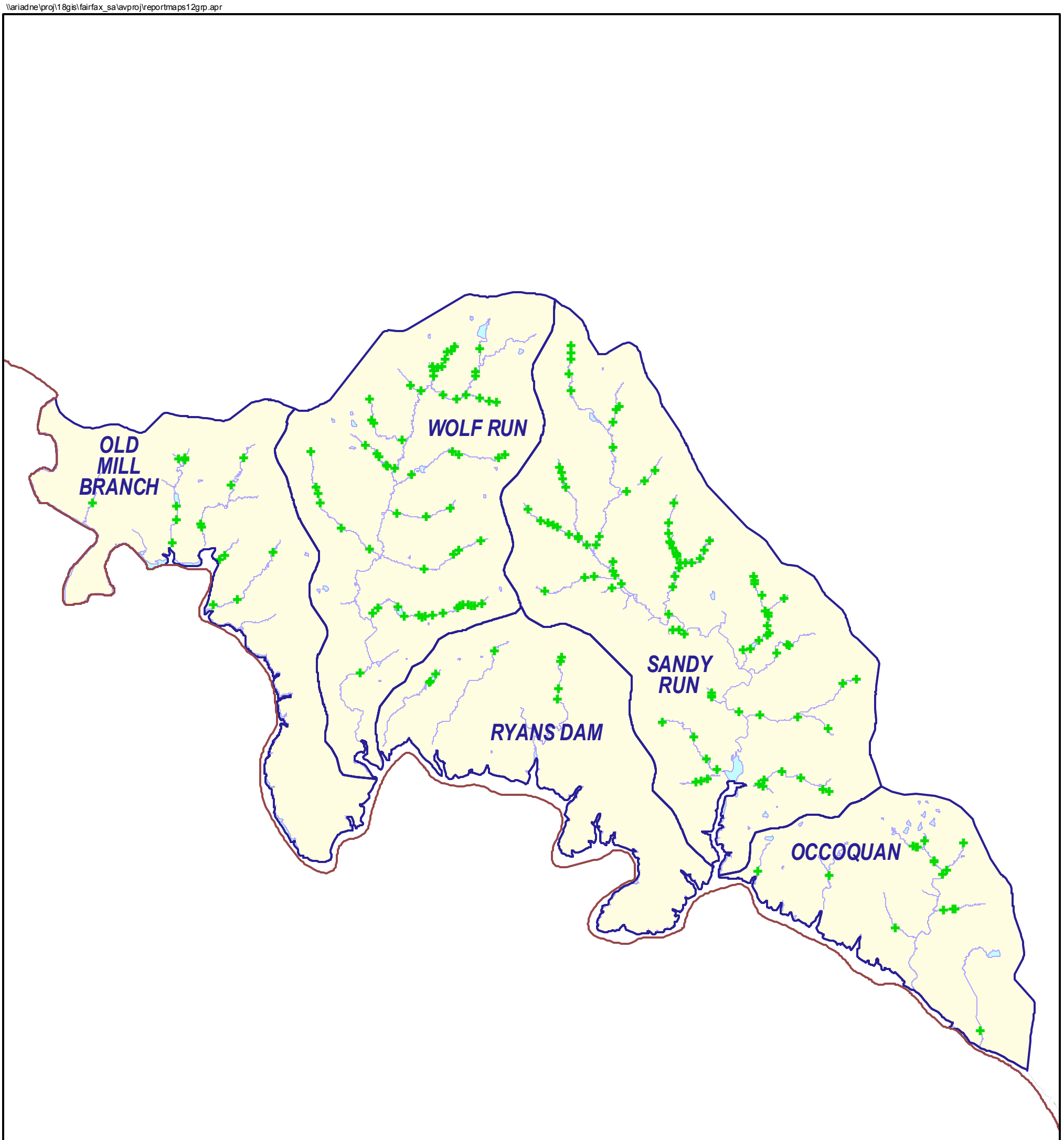
WATERSHED GROUP: UPPER OCCOQUAN

0 2000 4000 6000 8000 Feet

Figure 3-76
Deficient Buffer Impacts
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL

\\ariadne\proj\18gis\fairfax_sa\avproj\reportmaps12grp.apr



Inventory Type
Crossing

Fairfax County Boundary
Lakes and Ponds
Streams
Watersheds

N

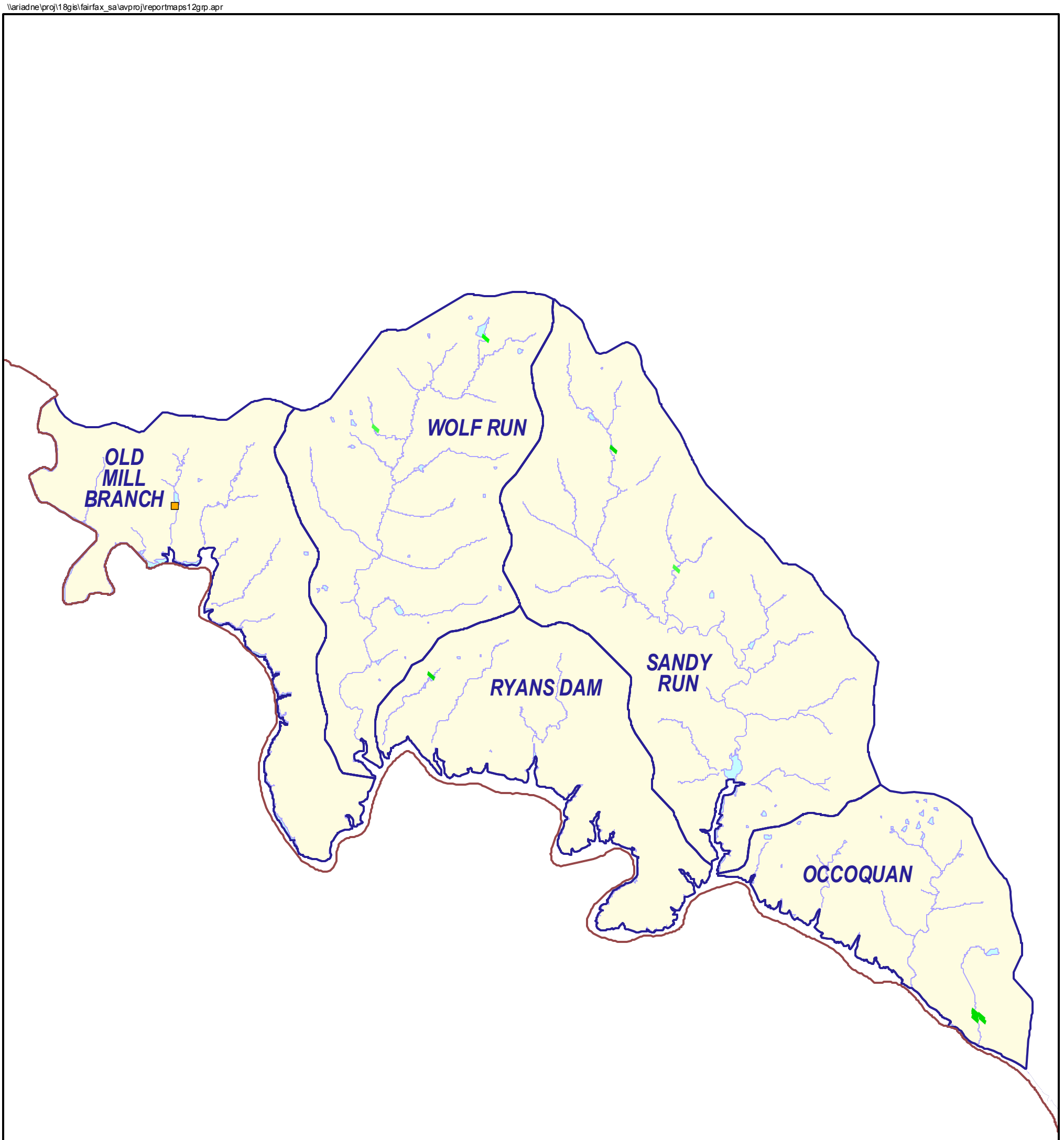
0 2000 4000 6000 8000 Feet

WATERSHED GROUP:
UPPER OCCOQUAN

Figure 3-77
Crossings
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL

\\ariadne\proj\18gis\fairfax_sa\avproj\reportmaps12grp.apr



Pipe / Ditch by Impact Score

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Fairfax County Boundary
Lakes and Ponds
Streams
Watersheds

N

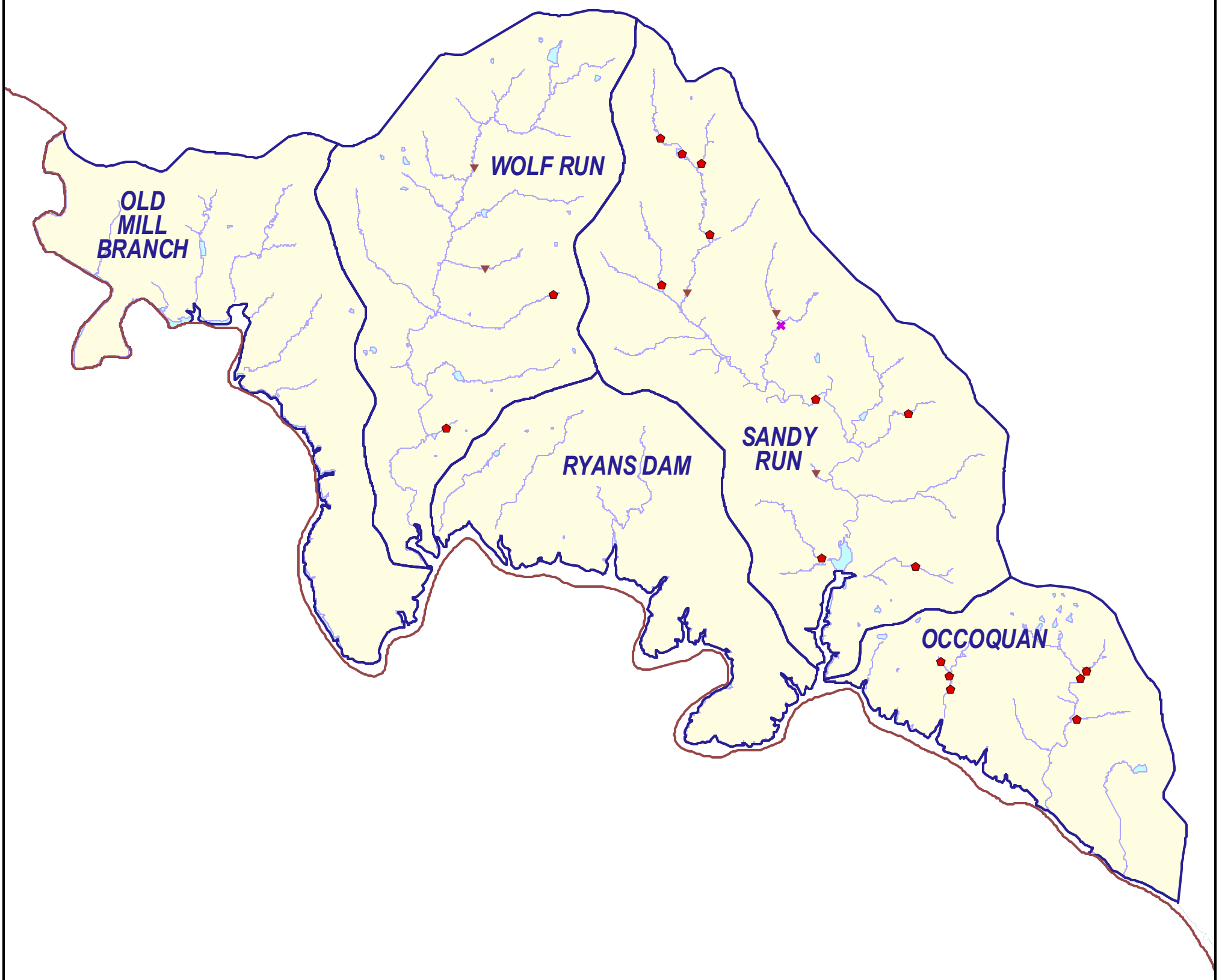
WATERSHED GROUP:
UPPER OCCOQUAN

0 2000 4000 6000 8000 Feet

Figure 3-78
Pipe and Ditch Impacts
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL

\\ariadne\proj\18gis\fairfax_sa\avproj\reportmaps12grp.apr



Inventory Types
- Dump
- Obstruction
- Utility

- Fairfax County Boundary
- Lakes and Ponds
- Streams
- Watersheds

WATERSHED GROUP: UPPER OCCOQUAN

N

0 2000 4000 6000 8000 Feet

Figure 3-79
Dumps, Obstructions, and Utilities
Upper Occoquan Group
Fairfax County Stream Physical Assessment

CH2MHILL